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Brocade Fabric OS Switch

Log Insight Content Pack

for VMware vCenter Log Insight
User's Guide

Version 1.0

BROCADE

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Brocade Communications Systems, Incorporated

Corporate and Latin American Headquarters
Brocade Communications Systems, Inc.
130 Holger Way
San Jose, CA 95134
Tel: 1-408-333-8000
Fax: 1-408-333-8101
E-mail: info@brocade.com

Asia-Pacific Headquarters
Brocade Communications Systems China HK, Ltd.
No. 1 Guanghua Road
Chao Yang District
Units 2718 and 2818
Beijing 100020, China
Tel: +8610 6588 8888
Fax: +8610 6588 9999
E-mail: china-info@brocade.com

European Headquarters
Brocade Communications Switzerland Sàrl
Centre Swissair
Tour B - 4ème étage
29, Route de l'Aéroport
Case Postale 105
CH-1215 Genève 15
Switzerland
Tel: +41 22 799 5640
Fax: +41 22 799 5641
E-mail: emea-info@brocade.com

Asia-Pacific Headquarters
Brocade Communications Systems Co., Ltd. (Shenzhen WFOE)
Citic Plaza
No. 233 Tian He Road North
Unit 1308 - 13th Floor
Guangzhou, China
Tel: +8620 3891 2000
Fax: +8620 3891 2111
E-mail: china-info@brocade.com

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How this document is organized

This document is organized to help you find the information that you want as quickly and easily as possible. This document supports the Brocade Fabric OS Content Pack for VMware vCenter Log Insight.

The document contains the following components:

- [Chapter 1, “Getting Started,”](#) provides requirements and instructions for importing a the Brocade - SAN content pack and configuring event handling.
- [Chapter 2, “SAN Event Dashboards,”](#) provides information about the event dashboards that display.
- [Chapter 3, “Interactive Analytics,”](#) provides information about searching and filtering log events, creating queries to extract events based on timestamp, text, source, and fields in log events, and custom extract fields.

Supported software

The Brocade Fabric OS Content Pack for VMware vCenter Log Insight is supported with the following software versions:

- Brocade Network Advisor
- vCenter Log Insight Server

What's new in this document

This is a new document.

Document conventions

This section describes text formatting conventions and important notice formats used in this document.

Text formatting

The narrative-text formatting conventions that are used are as follows:

bold text	Identifies command names Identifies the names of user-manipulated GUI elements Identifies keywords and operands Identifies text to enter at the GUI or CLI
<i>italic text</i>	Provides emphasis Identifies variables Identifies paths and Internet addresses Identifies document titles
<code>code text</code>	Identifies CLI output Identifies command syntax examples

For readability, command names in the narrative portions of this guide are presented in mixed lettercase: for example, **switchShow**. In actual examples, command lettercase is all lowercase.

Notes, cautions, and warnings

The following notices and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

NOTE

A note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION

An Attention statement indicates potential damage to hardware or data.

Key terms

For definitions specific to Brocade and Fibre Channel, see the *Brocade Glossary*.

For definitions of SAN-specific terms, visit the Storage Networking Industry Association online dictionary at:

<http://www.snia.org/education/dictionary>

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Corporation	Referenced trademarks and products
VMware, Inc.	VMware

Additional information

This section lists additional Brocade and industry-specific documentation that you might find helpful.

Brocade resources

To get up-to-the-minute information, go to <http://my.brocade.com> to register at no cost for a user ID and password.

White papers, online demonstrations, and data sheets are available through the Brocade website at:

<http://www.brocade.com/products-solutions/products/index.page>

For additional Brocade documentation, visit the Brocade website:

<http://www.brocade.com>

Release notes are available on the MyBrocade website and are also bundled with the Fabric OS firmware.

Other industry resources

For additional resource information, visit the Technical Committee T11 website. This website provides interface standards for high-performance and mass storage applications for Fibre Channel, storage management, and other applications:

<http://www.t11.org>

For information about the Fibre Channel industry, visit the Fibre Channel Industry Association website:

<http://www.fibrechannel.org>

Document feedback

Quality is our first concern at Brocade and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. Forward your feedback to:

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Provide the title and version number of the document and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

Getting Started

In this chapter

- [Fabric OS switch content pack overview](#) 1
- [Installation](#) 1
- [Event handling configuration](#) 2

Fabric OS switch content pack overview

You can use the Brocade Fabric OS Switch Log Insight Content Pack for VMware vCenter Operations Management Suite to collect data using the syslog protocol. This content pack helps you analyze syslog messages received from Fabric OS switches and display the details in dashboard. You can also configure Log Insight to generate alerts for critical syslog events.

Software requirements

- Brocade Network Advisor Professional Plus, Enterprise, or Headless editions
- vCenter Log Insight

Installation

You must import the Brocade Fabric OS Switch Log Insight Content Pack to collect, import, and analyze Fabric OS syslogs to provide real-time answers to problems, and derive important insights about systems, services, and applications.

Importing a content pack

To import the Brocade Fabric OS Switch Log Insight Content Pack, complete the following steps.

1. Select **Content Packs** from the **Settings** list.

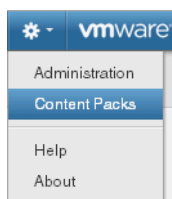


FIGURE 1 Settings list

1 Event handling configuration

- 2. Click **Import Content Pack**.
The **Import Content Pack** dialog box displays.
- 3. Browse to the location of the Brocade - SAN.vlcp file and click **Open**.
- 4. Click **Import**.
- 5. The **Brocade - SAN** content pack displays in the **Content Packs** list.

Event handling configuration

The Brocade Fabric OS Switch Log Insight Content Pack for VMware vCenter Operations Management Suite can receive syslog messages directly from Fabric OS switches or from all Fabric OS switches managed by Brocade Network Advisor.

You must configure vCenter Log Insight, Fabric OS switches, and Brocade Network Advisor to enable event handling so that the Log Insight server receives events from Fabric OS switches and Brocade Network Advisor.

vCenter Log Insight event handling

Make sure that the vCenter Log Insight is configured to listen to the syslog messages on the one of the following ports:

TABLE 1 Syslog port numbers

Environment	Port number
UDP	514
TCP	514
TCP (SSL)	1514

Configuring syslog forwarding on a Fabric OS switch

You must register the Log Insight server IP address for each Fabric OS switch on which you want to analyze data. If you are using Brocade Network Advisor, you should also make sure that Fabric OS switches are configured to send traps to Brocade Network Advisor.

To configure the switch to forward all system events and error messages to the system logging daemon (syslogd) of the Log Insight and Brocade Network Advisor server, complete the following steps.

- 1. Log in to the switch as admin.
- 2. Execute the **syslogdipadd IP_address** command to add a server to which system messages are forwarded.

```
switch:admin> syslogdipadd 192.0.2.2
```

You can configure up to six syslog servers to receive the syslog messages.

3. Verify the syslog configuration on the switch by executing the **syslogdipshow** command.

```
switch:admin> syslogdipshow
```

```
syslog.1 192.0.2.2
```

Remove a configured syslog server by executing the **syslogdipRemove IP_address** command.

Configuring syslog forwarding on Brocade Network Advisor

You must register the Log Insight server IP address on Brocade Network Advisor to receive all system events and error messages for Fabric OS switches managed by Brocade Network Advisor.

To configure the Brocade Network Advisor to forward all system events and error messages for all managed Fabric OS switches to the Log Insight server, complete the following steps.

1. Select **Monitor > Syslog Configuration > Syslog Forwarding**.

The **Syslog Forwarding** dialog box, shown in Figure 2, displays.

This dialog allows this server to forward received syslog events to a destination on a different host

☐ Enable syslog forwarding

Enable	Description	IP Address	Port	Repeater
Yes	Forwarding to 220	192.1.1.220	514	Yes

Add Edit Duplicate Delete

Name	Description
Filter 1	Sample filter 1

Add Edit Duplicate Delete

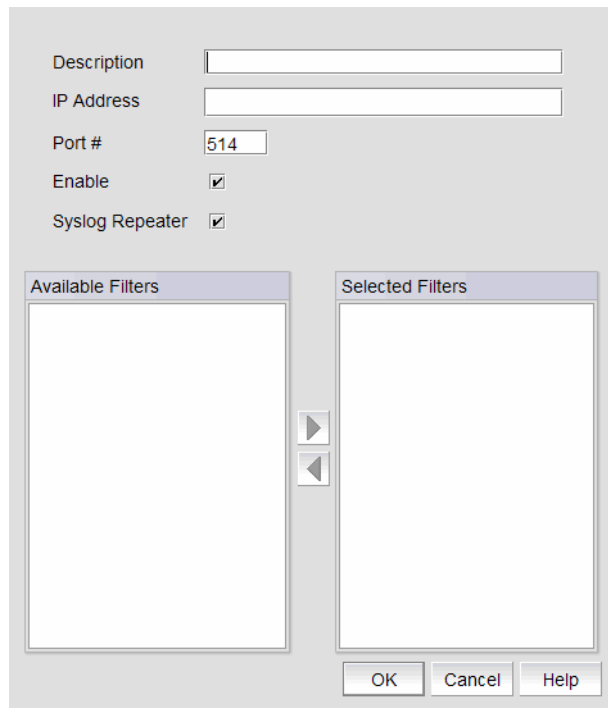
OK Cancel Help

FIGURE 2 Syslog Forwarding dialog box

2. Select the **Enable syslog forwarding** check box.
3. Click **Add**.

The **Add Syslog Destination** dialog box, shown in Figure 3, displays. The **Enable** and **Syslog Repeater** check boxes are selected by default.

1 Event handling configuration



The dialog box is titled "Add Syslog Destination". It contains the following fields and controls:

- Description:** A text input field.
- IP Address:** A text input field.
- Port #:** A text input field with the value "514" entered.
- Enable:** A checked checkbox.
- Syslog Repeater:** A checked checkbox.
- Available Filters:** A list box on the left.
- Selected Filters:** A list box on the right.
- Between the filter lists are two arrow buttons: a right-pointing arrow (add) and a left-pointing arrow (remove).
- At the bottom are three buttons: **OK**, **Cancel**, and **Help**.

FIGURE 3 Add Syslog Destination dialog box

4. Enter a general description of the Log Insight syslog destination in the **Description** field.
5. Enter the IP address of the Log Insight syslog destination in the **IP Address** field.

This is a mandatory field. You can enter an IPv4 or IPv6 address, however, you cannot enter a DNS name.
6. Enter the syslog listening port of the Log Insight recipient in the **Port #** field.

This is a mandatory field. Valid numeric values range from 1 through 65535. The default is 514.
7. Select the **Enable** check box to enable syslog forwarding to this recipient.
8. Clear the **Syslog Repeater** check box.

You can only configure Brocade Network Advisor to send syslog messages for managed Fabric OS switches.
9. Select up to five filters from the **Available Filters** list and click the right arrow button to move them to the **Selected Filters** list.

Filters are not mandatory. Filters enable you to create a group of Fabric OS switches and the severity level at which to trigger syslog messaging. For step-by-step instructions about configuring a filter, refer to the *Brocade Network Advisor User Manual* or online help.
10. Click **OK** on the **Add Syslog Destination** dialog box.

Monitoring and Alerting Policy Suite (MAPS) configuration

MAPS is supported on Fabric OS switches running 7.2 and later. If you have Fabric OS switches running 7.2 or later and want to utilize the MAPS widget in Log Insight, you need to enable MAPS on the switch and configure a MAPS policy with the RASLOG action. To configure MAPS directly on the switch, refer to the *Fabric OS Monitoring and Alerting Policy Suite Administrator's Guide*. To configure MAPS in Brocade Network Advisor, refer to the *Brocade Network Advisor User Manual* or online help

Accessing Log Insight

To launch the **VMware vCenter Log Insight** application, complete the following steps.

1. Open a web browser and enter the IP address of the Log Insight server in the **Address** bar.
The **VMware vCenter Log Insight** login dialog box displays.
2. Enter your user name and password.
3. Click **Login**.

The **VMware vCenter Log Insight** application Dashboard screen displays.

1 Accessing Log Insight

SAN Event Dashboards

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• Fabric Watch Events dashboard.....	17
• MAPS Events dashboard.....	19
• Switch Status Events dashboard	21
• Syslog Events dashboard	23

Events dashboards overview

The Brocade Fabric OS Switch Log Insight Content Pack for VMware vCenter Operations Management Suite displays Audit, Bottleneck, Call Home, Fabric, Monitoring and Alerting Policy Suite (MAPS), Switch, and Syslog alerts received from the Brocade Network Advisor server or Fabric OS switches. Before you can view event alerts, you must configure event handling for vCenter Operations Manager and Brocade Network Advisor (refer to [“Event handling configuration”](#) on page 2).

Log Insight allows two types of dashboards:

- Custom — Created by users and can be cloned, edited, and deleted. You can also add, clone, move, and delete log chart widgets in all custom dashboards. Custom dashboards are categorized as follows:
 - My Dashboards — Created by you and only visible to you.
 - Shared Dashboards — Created by another user and visible to all users.
- Content pack — Imported with a content pack and visible to any user with that content pack. Content pack dashboards cannot be edited; however, you can clone it to your custom dashboards. Once cloned, you can edit the dashboard as needed.

The Brocade Fabric OS Switch Log Insight Content Pack for VMware vCenter Operations Management Suite includes the following dashboards:

- Audit Events dashboard — Displays all audit events received from Fabric OS switches. For detailed information, refer to [“Audit Events dashboard”](#) on page 10.
- Bottleneck Events dashboard — Displays all bottlenecked related events received from Fabric OS switches. For detailed information, refer to [“Bottleneck Events dashboard”](#) on page 12.

- Callhome Events dashboard — Displays all call home related events received from Fabric OS switches. For detailed information, refer to [“Callhome Events dashboard”](#) on page 14.
- Fabric Watch Events dashboard — Displays all Fabric Watch related events received from Fabric OS switches. For detailed information, refer to [“Fabric Watch Events dashboard”](#) on page 17.
- MAPS Events dashboard — Displays all MAPS violation events received from Fabric OS switches. For detailed information, refer to [“MAPS Events dashboard”](#) on page 19.
- Switch Status Events dashboard — Displays displays Fabric Watch events received from Fabric OS switches. For detailed information, refer to [“Switch Status Events dashboard”](#) on page 21
- Syslog Events dashboard — Displays all syslog messages received from Fabric OS switches. For detailed information, refer to [“Syslog Events dashboard”](#) on page 23

Accessing a dashboard

To access a custom or content pack dashboard, complete the following steps.




1. Click the **Dashboards** tab.
2. Select one of the following options:
 - My Dashboards — Displays a list of dashboards created by you.
 - Shared Dashboards — Displays a list of dashboards shared with all users.
 - **Brocade - SAN** — Displays the default content pack dashboards.
3. Select the time range for which you want to view data:
 - **Latest 5 minutes of data**
 - **Latest hour of data**
 - **Latest 6 hours of data**
 - **Latest 24 hours of data**
 - **Custom** (refer to [“Defining a custom time frame”](#) on page 9)
4. Select the dashboard you want to view.

Brocade - SAN content pack options include:

- [Audit Events dashboard](#)
- [Bottleneck Events dashboard](#)
- [Callhome Events dashboard](#)
- [Fabric Watch Events dashboard](#)
- [MAPS Events dashboard](#)
- [Switch Status Events dashboard](#)
- [Syslog Events dashboard](#)

Dashboard widget functions

Depending on the widget, you can perform the following functions:

- Click the  icon to display additional information about a widget.
- Click the  icon to display the widget data in the **Interactive Analytics** tab.
- Click the  icon to select another action for the widget (such as Clone).
- Place your cursor on a bar in the widget to display additional information.
- Double-click a bar in the widget to display the widget data in the **Interactive Analytics** tab.

Defining a custom time frame


To define a custom time frame for the dashboard, complete the following steps.

1. Select **Custom** from the time range list.
2. Click the calendar icon and select a start date in the first date field.

You can also enter the date and time using the following format: YYYY-MM-DD HH:MM (for example 2013-10-17 06:08).
3. Click the calendar icon and select a end date in the last date field.
4. Click **Go**.

Cloning a dashboard

To clone a content pack dashboard, complete the following steps.

1. Click the **Dashboards** tab.
2. Select **Brocade - SAN** from the Dashboards list.
3. Point to the dashboard you want to clone.
4. Click the **Add to custom dashboard** () icon and select Clone Dashboard.
5. Change the name of the dashboard, if necessary, in the **Name** field.
6. Share the dashboard with other users by selecting the **Share this dashboard among all uses** check box.
7. Click **Save**.

A “new dashboard created” message displays. To view or edit the dashboard, refer to [“Accessing a dashboard”](#) on page 8.

Audit Events dashboard

The **Audit Events** dashboard displays all audit events (Audit type syslog messages) received from Fabric OS switches. The **Audit Events** dashboard contains the following widgets:

- [Audit Events over Time widget](#)
- [Audit Events by Module widget](#)
- [Audit Events by Product widget](#)
- [Login queries widget](#)

Table 2 lists the audit data received from the Fabric OS devices, which is used to populate the audit widgets.

TABLE 2 Audit data

Data	Description	Example values
dcm_audit_module	The Fabric OS subsystem which generated this audit event.	Security or Fabric
dcm_audit_priority	The priority of the audit event.	Informational or Warning
dcm_audit_type	The type of the audit event.	Login or Logout
dcm_audit_status	The status of the event.	Login failed or success
dcm_audit_info	The information about the event.	Failed login attempt via HTTP
dcm_audit_IPAddress	The IP Address of the Fabric OS switch.	IP address

Audit Events over Time widget

The **Audit Events over Time** widget displays all audit events received from Fabric OS switches over a specified period of time.

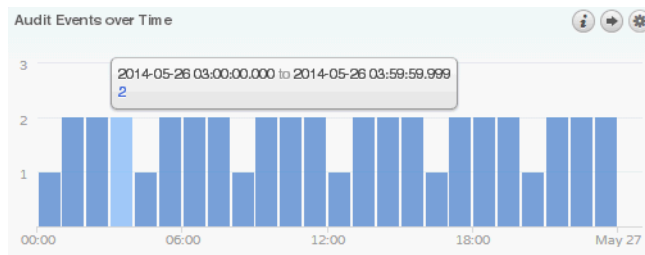


FIGURE 4 Audit Events over Time

Place your cursor on a bar in the widget to display the time range configured for the dashboard and the number of audit events that occurred during that time frame.

Audit Events by Module widget

The **Audit Events by Module** widget displays all audit events received from Brocade Fabric OS switches grouped by Fabric OS subsystem. For example, Security, Fabric, and so on.

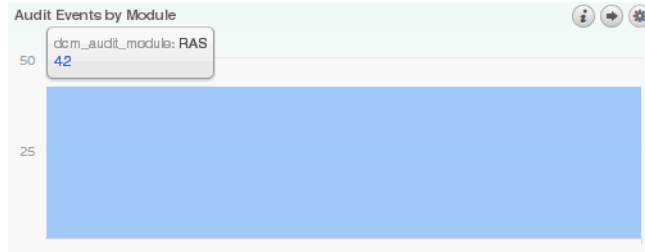


FIGURE 5 Audit Events by Module

Place your cursor on a bar in the widget to display the affected module (such as security, fabric, RAS, and so on) and the number of audit events that occurred on that module.

Audit Events by Product widget

The **Audit Events by Product** widget displays all audit events received from Brocade Fabric OS switches grouped by product. This enables you to view all syslog messages received from a specific Fabric OS switch.

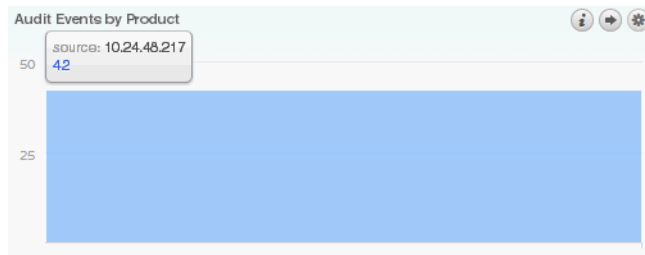


FIGURE 6 Audit Events by Product

Place your cursor on a bar in the widget to display the product's IP address and the number of audit events that occurred on that product.

Login queries widget

The **Login queries** widget displays all login attempts received from Brocade Fabric OS switches over a specified time range.

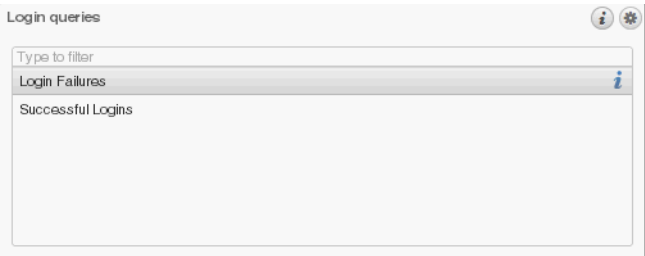


FIGURE 7 Login queries widget

Bottleneck Events dashboard

The **Bottleneck Events** dashboard displays all bottlenecked related events (AN-1003, AN-1004, AN-1007, AN-1008, and AN-1010) received from Fabric OS switches. The **Bottleneck Events** dashboard contains the following widgets:

- [Bottleneck Events over Time widget](#)
- [Bottleneck Events by Product widget](#)
- [Count of Events grouped by Bottleneck Type widget](#)

Table 3 details the bottleneck event types covered by the **Bottleneck Events** dashboard.

TABLE 3 Bottleneck event types

Type	Description
AN-1003	Latency bottleneck on port <slot number>/<port number within slot number>. <percentage of seconds affected by latency bottlenecking> pct. of <observation period over which the percentage of affected seconds is reported> secs. affected. Avg. delay <observed average time between frames during affected seconds> us. Avg. slowdown <observed throughput drop factor during affected seconds>.
AN-1004	Congestion bottleneck on port <slot number>/<port number within slot number>. <percentage of seconds affected by congestion bottlenecking> pct. of <observation period over which the percentage of affected seconds is reported> secs. affected.
AN-1007	
AN-1008	
AN-1010	Severe latency bottleneck detected at slot <slot number> port <port number within slot number>.

Table 4 lists the data received from the Fabric OS devices, which is used to populate the bottleneck widgets.

TABLE 4 Bottleneck data

Data	Description	Example values
dcm_bottleneck_type	Displays the type of bottleneck.	Congestion or Latency

Bottleneck Events over Time widget

The **Bottleneck Events over Time** widget displays all bottleneck events received from Brocade Fabric OS switches over a specified time.

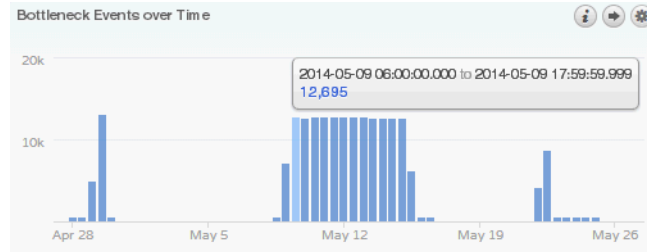


FIGURE 8 Bottleneck Events over Time

Place your cursor on a bar in the widget to display the time range configured for the widget and the number of bottleneck events that occurred during that time frame.

Bottleneck Events by Product widget

All bottleneck events (AN-1003, AN-1004, AN-1007, AN-1008 & AN-1010) received from Brocade Fabric OS switches grouped by switch.



FIGURE 9 Bottleneck Events by Product

Place your cursor on a bar in the widget to display the product's IP address and the number of bottleneck events that occurred on that product.

Count of Events grouped by Bottleneck Type widget

All bottleneck events (AN-1003, AN-1004, AN-1007, AN-1008 & AN-1010) received from Brocade Fabric OS switches grouped by bottleneck type i.e. Congestion or Latency.

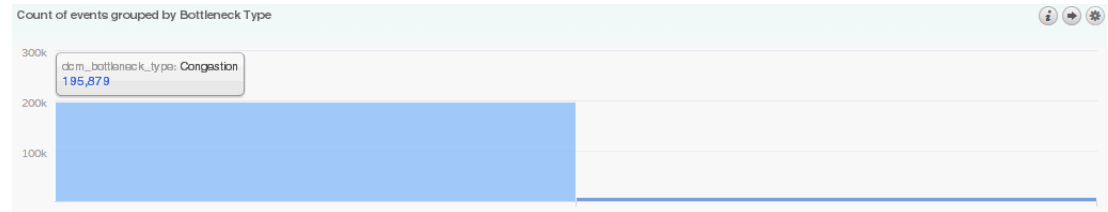


FIGURE 10 Count of Events grouped by Bottleneck Type

Place your cursor on a bar in the widget to display the affected bottleneck type (such as congestion or latency) and the number of bottleneck events that occurred on that type.

Callhome Events dashboard

The **Callhome Events** dashboard displays all call home related events (for list of call home events, refer to [Table 5](#)) received from Fabric OS switches. The **Callhome Events** dashboard contains the following widgets:

- [Switch Callhome Events over Time grouped by Message ID widget](#)
- [Switch Callhome Events by Product widget](#)
- [Switch Callhome Events by Priority widget](#)

[Table 5](#) details the call home event types covered by the **Callhome Events** dashboard.

TABLE 5 Call Home events

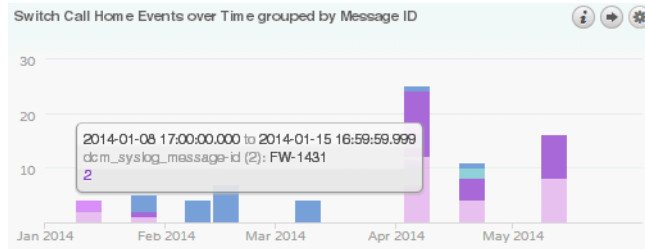
Event ID	Description
MS-1009	Error in registered link incident record (RLIR)
FW-1402	Flash usage is out of range
FW-1426	Faulty or Missing Power supply
FW-1427	Faulty Power supply
FW-1428	Missing Power supply
FW-1429	Problem in power supply arrangement
FW-1430	Faulty Temperature sensors
FW-1431	Faulty fans
FW-1432	Faulty WWN Cards
FW-1433	Faulty CPs
FW-1434	Faulty Blades
FW-1435	Flash usage is out of range
FW-1436	Marginal port
FW-1437	Faulty Port

TABLE 5 Call Home events

Event ID	Description
FW-1438	Faulty or Missing SFPs
MAPS-1021	Triggered by any of the following violations on a MAPS-enabled switch: <ul style="list-style-type: none"> Faulty or Absent Power Supplies Faulty or Absent Fans Faulty Temperature sensors Flash usage is out of range Faulty Ports Marginal ports Missing SFPs Error ports Faulty WWN Cards Faulty CPs Core blade redundancy Faulty or absent Blades

Switch Callhome Events over Time grouped by Message ID widget

The **Switch Callhome Events over Time grouped by Message ID** widget displays all call home events (listed in [Table 5](#)) received from Brocade Fabric OS switches grouped by message ID over a specified time.

**FIGURE 11** Switch Callhome Events over Time grouped by Message ID widget

Place your cursor on a bar in the widget to display the time range configured for the widget, the message ID, and the number of call home events that occurred during that time frame.

Switch Callhome Events by Product widget

The **Switch Callhome Events by Product** widget displays all call home events (listed in [Table 5](#)) received from Brocade Fabric OS switches grouped by product.

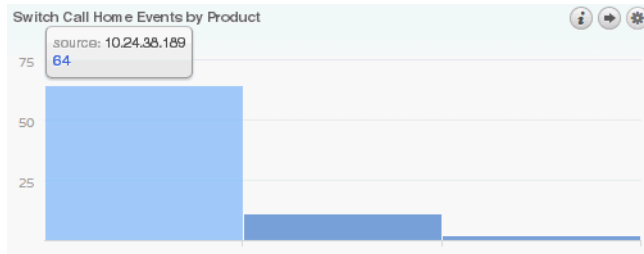


FIGURE 12 Switch Callhome Events by Product widget

Place your cursor on a bar in the widget to display the IP address of the product and the number of call home events that occurred on that product.

Switch Callhome Events by Priority widget

The **Switch Callhome Events by Product** widget displays all call home events (listed in [Table 5](#)) received from Brocade Fabric OS switches grouped by priority.

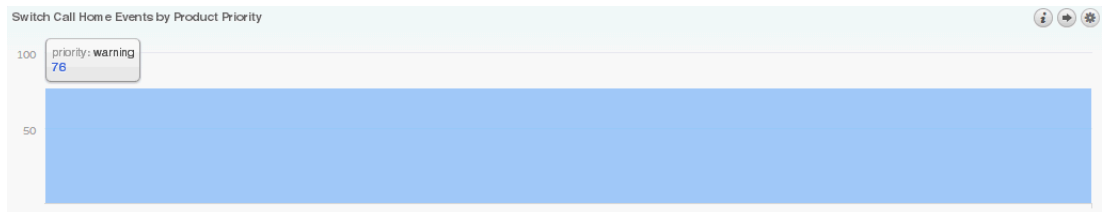


FIGURE 13 Switch Callhome Events by Priority widget

Place your cursor on a bar in the widget to display the product's priority and the number of call home events that occurred for that priority.

Fabric Watch Events dashboard

The **Fabric Watch Events** dashboard displays all Fabric Watch related events (prefixed by FW-) received from Fabric OS switches. The **Callhome Events** dashboard contains the following widgets:

- [Count of Fabric Watch Events grouped by Message ID widget](#)
- [Count of Fabric Watch Events over Time grouped by Priority widget](#)
- [Fabric Watch Events by Priority widget](#)
- [Fabric Watch Events by Product widget](#)

Count of Fabric Watch Events grouped by Message ID widget

The **Count of Fabric Watch Events grouped by Message ID** widget displays all Fabric Watch events (prefixed by FW-) received from Brocade Fabric OS switches grouped by message ID.

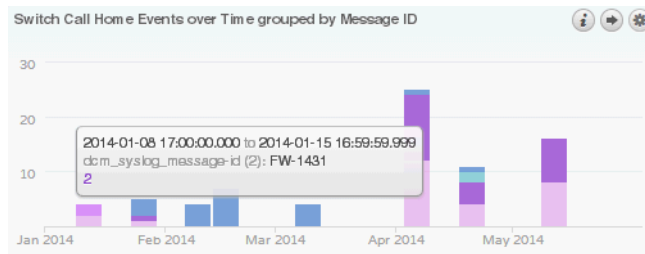


FIGURE 14 Count of Fabric Watch Events grouped by Message ID widget

Place your cursor on a bar in the widget to display the message ID and the number of Fabric Watch events that occurred for that message ID.

Count of Fabric Watch Events over Time grouped by Priority widget

The **Count of Fabric Watch Events over Time grouped by Priority** widget displays all Fabric Watch events (prefixed by FW-) received from Brocade Fabric OS switches grouped by priority.

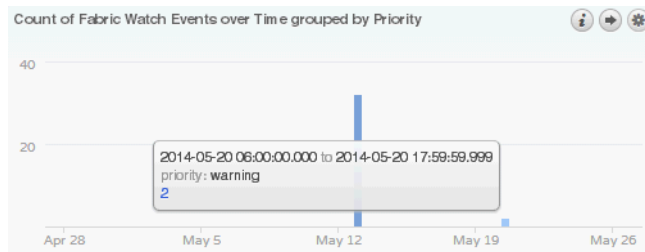


FIGURE 15 Count of Fabric Watch Events over Time grouped by Priority widget

Place your cursor on a bar in the widget to display the time range configured for the dashboard, the priority, and the number of events that occurred during that priority.

Fabric Watch Events by Priority widget

The **Fabric Watch Events by Priority** widget displays all Fabric Watch events (prefixed by FW-) received from Brocade Fabric OS switches grouped by priority (for example info, warning, error, and so on).

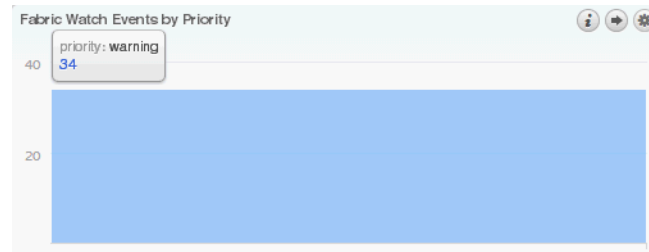


FIGURE 16 Fabric Watch Events by Priority widget

Place your cursor on a bar in the widget to display the priority and the number of events that occurred during that priority.

Fabric Watch Events by Product widget

The **Fabric Watch Events by Product** widget displays all Fabric Watch events (prefixed by FW-) received from Brocade Fabric OS switches grouped by product.

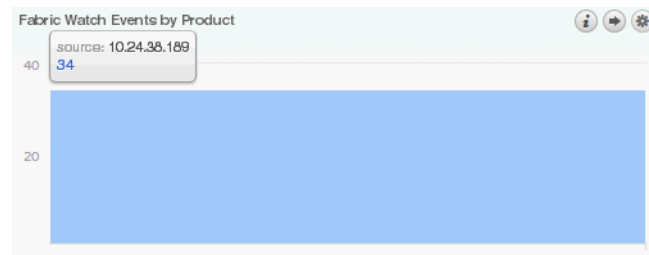


FIGURE 17 Fabric Watch Events by Product widget

Place your cursor on a bar in the widget to display the IP address of the product and the number of events that occurred on that product.

MAPS Events dashboard

The **MAPS Events** dashboard displays all MAPS violation events (prefixed by MAPS-) received from Fabric OS switches. The **MAPS Events** dashboard contains the following widgets:

- [Count of MAPS violation Events over Time grouped by Category widget](#)
- [MAPS violation Events grouped by Priority widget](#)
- [MAPS violation Events grouped by Product widget](#)
- [Count of MAPS Violation Events by Category widget](#)
- [Count of Flow Violation Events over Time grouped by Category widget](#)

Table 6 lists the MAPS data received from the Fabric OS devices, which is used to populate the MAPS events widgets.

TABLE 6 MAPS data

Data	Description	Example values
dcm_flow_currentValue	The current value of the violation count.	Numeric value
dcm_maps_category	The MAPS violation category.	Traffic Performance, Port Health, and so on.
dcm_maps_rulename	The MAPS violation rule name.	String
dcm_maps_rulecondition	The MAPS violation rule condition.	ALL_PORTS(RX/min>=0)
dcm_maps_object	The MAPS violation occurred object details.	Switch, Chassis
dcm_flash_usage	The flash usage details.	Numeric value
dcm_maps_currentValue	The current value.	SEC_HTTP, 1 Violations

Count of MAPS violation Events over Time grouped by Category widget

The **Count of MAPS violation Events over Time grouped by Category** widget displays all MAPS violation events (prefixed by MAPS-) received from Brocade Fabric OS switches grouped by category (switch resource, FRU, port health, and so on).

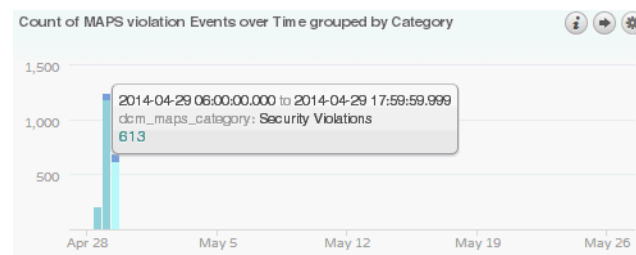


FIGURE 18 Count of MAPS violation Events over Time grouped by Category widget

Place your cursor on a bar in the widget to display the time range specified for the dashboard, the category, and the number of events that occurred for that category.

MAPS violation Events grouped by Priority widget

The **MAPS violation Events by Priority** widget displays all MAPS violation events (prefixed by MAPS-) received from Brocade Fabric OS switches grouped by priority (info, warning, and so on).

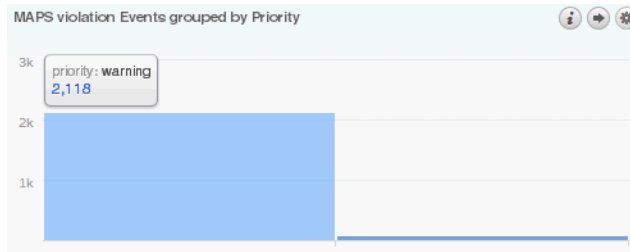


FIGURE 19 Count of MAPS violation Events by Category widget

Place your cursor on a bar in the widget to display the priority and the number of events that occurred for that priority.

MAPS violation Events grouped by Product widget

The **MAPS violation Events by Product** widget displays all MAPS violation events (prefixed by MAPS-) received from Brocade Fabric OS switches grouped by product.

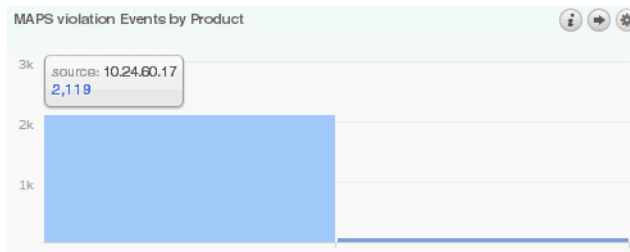


FIGURE 20 Count of MAPS violation Events by Category widget

Place your cursor on a bar in the widget to display the Product's IP address and the number of events that occurred for that product.

Count of MAPS Violation Events by Category widget

The **Count of MAPS violation Events by Category** widget displays all MAPS violation events (prefixed by MAPS-) received from Brocade Fabric OS switches grouped by category (switch resource, FRU, port health, and so on).

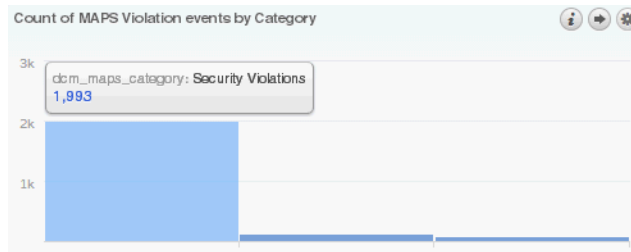


FIGURE 21 Count of MAPS violation Events by Category widget

Place your cursor on a bar in the widget to display the category and the number of events that occurred for that category.

Count of Flow Violation Events over Time grouped by Category widget

The **Count of Flow violation Events over Time grouped by Category** widget displays Flow violation events (MAPS-1001, MAPS-1002, and MAPS-1003) received from Brocade Fabric OS switches grouped by category (switch resource, FRU, port health, and so on).

Place your cursor on a bar in the widget to display the time range specified for the dashboard, the category, and the number of events that occurred for that category.

Switch Status Events dashboard

The **Switch Status Events** dashboard displays Fabric Watch events (FW-1424 and FW-1425) received from Fabric OS switches. The **Switch Status Events** dashboard contains the following widgets:

- [Count of MAPS violation Events over Time grouped by Category widget](#)
- [MAPS violation Events grouped by Priority widget](#)
- [MAPS violation Events grouped by Product widget](#)

Table 7 lists the Fabric Watch events received from the Fabric OS devices.

TABLE 7 Switch Status events

Event ID	Description
FW-1424	Switch status changed from <previous state> to <current state>.
FW-1425	Switch status changed from <bad state> to HEALTHY.

Table 8 lists the data received from the Fabric OS devices, which is used to populate the switch status events widgets.

TABLE 8 Switch Status data

Data	Description	Example values
dcm_switch_status	The switch transition status (previous and current status)	Healthy to Down

Count of Events over Time widget

The **Count of Events over Time** widget displays the events (FW-1424 and FW-1425) received from Brocade Fabric OS switches grouped by time range.

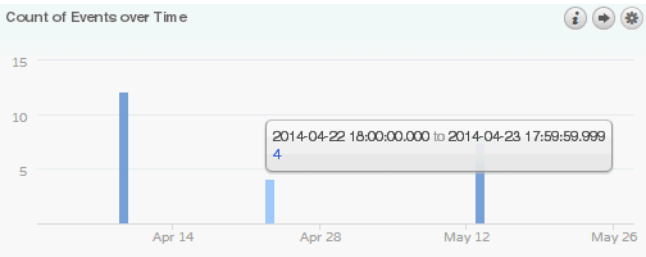


FIGURE 22 Count of Events over Time widget

Place your cursor on a bar in the widget to display the time range and the number of events that occurred during that time range.

Switch Status Events grouped by Priority widget

The **Switch Status Events grouped by Priority** widget displays the events (FW-1424 and FW-1425) received from Brocade Fabric OS switches grouped by priority (info, warning, and so on).



FIGURE 23 Switch Status Events grouped by Priority widget

Place your cursor on a bar in the widget to display the priority and the number of events that occurred for that priority.

Switch Status Events by Product widget

The **Switch Status Events grouped by Product** widget displays the events (FW-1424 and FW-1425) received from Brocade Fabric OS switches grouped by product.



FIGURE 24 Switch Status Events grouped by Product widget

Place your cursor on a bar in the widget to display the product and the number of events that occurred for that product.

Syslog Events dashboard

The **Syslog Events** dashboard displays all syslog messages received from Fabric OS switches. The **Syslog Events** dashboard contains the following widgets:

- [Count of MAPS violation Events over Time grouped by Category widget](#)
- [MAPS violation Events grouped by Priority widget](#)
- [MAPS violation Events grouped by Product widget](#)

[Table 9](#) lists the data received from the Fabric OS devices, which is used to populate the syslog events widgets.

TABLE 9 Syslog data

Data	Description	Example values
dcm_syslog_message-id	The message id.	FW-1435, MAPS-1003
dcm_wwn_address	The world wide name of the switch.	switch WWN
dcm_device_name	The name of the switch.	switch name
dcm_device_port	The port number of the switch.	port number
dcm_log_level	The syslog priority level.	Info, Warning

Count of Events grouped by Message ID widget

The **Count of Events grouped by Message ID** widget displays all syslog events received from Brocade Fabric OS switches grouped by message ID.

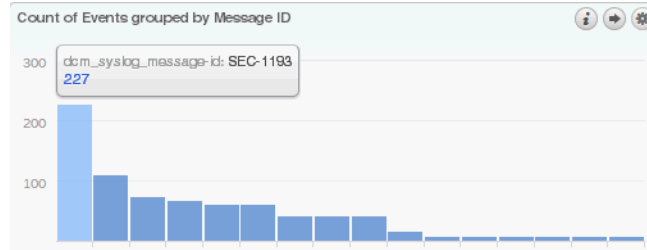


FIGURE 25 Count of Events grouped by Message ID widget

Place your cursor on a bar in the widget to display the message ID and the number of syslog events that occurred for that message ID.

Count of Events over Time grouped by Priority widget

The **Count of Events over Time grouped by Priority** widget displays all syslog events received from Brocade Fabric OS switches grouped by priority.

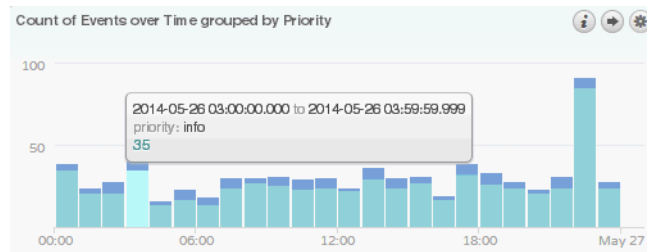


FIGURE 26 Count of Events over Time grouped by Priority widget

Place your cursor on a bar in the widget to display the time range configured for the dashboard, the priority, and the number of syslog events that occurred during that priority.

Events by Priority widget

The **Events by Priority** widget displays all syslog events received from Brocade Fabric OS switches grouped by priority (for example info, warning, error, and so on).



FIGURE 27 Events by Priority widget

Place your cursor on a bar in the widget to display the priority and the number of syslog events that occurred during that priority.

Events by Product widget

The **Events by Product** widget displays all syslog events received from Brocade Fabric OS switches grouped by product.

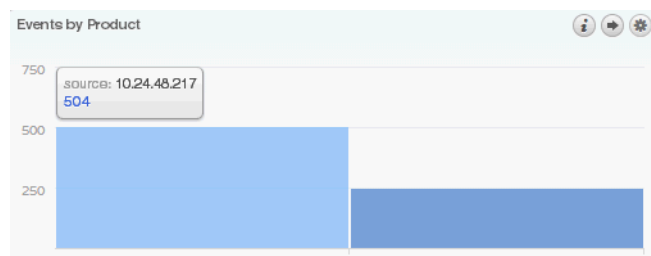


FIGURE 28 Events by Product widget

Place your cursor on a bar in the widget to display the IP address of the product and the number of syslog events that occurred on that product.

2 Syslog Events dashboard

Interactive Analytics

In this chapter


- [Interactive analytics overview](#) 27
- [Log events](#) 28
- [Alerts](#) 31
- [Brocade SAN custom extract fields](#) 34

Interactive analytics overview

You can use the **Interactive Analytics** tab to search and filter log events and configure alert queries to notify you when an alert is triggered. Alerts display as charts which you can save to the **Dashboard** tab.

Viewing Brocade SAN widget data in Interactive Analytics

To view a Brocade SAN content pack widget in the **Interactive Analytics** tab, complete the following steps.

1. From the **Dashboards** tab, select a dashboard (refer to [“Accessing a dashboard”](#) on page 8).
2. Click the  icon of the widget that you want to display the **Interactive Analytics** tab.

The **Interactive Analytics** tab displays with the selected widget data populated.

3 Log events

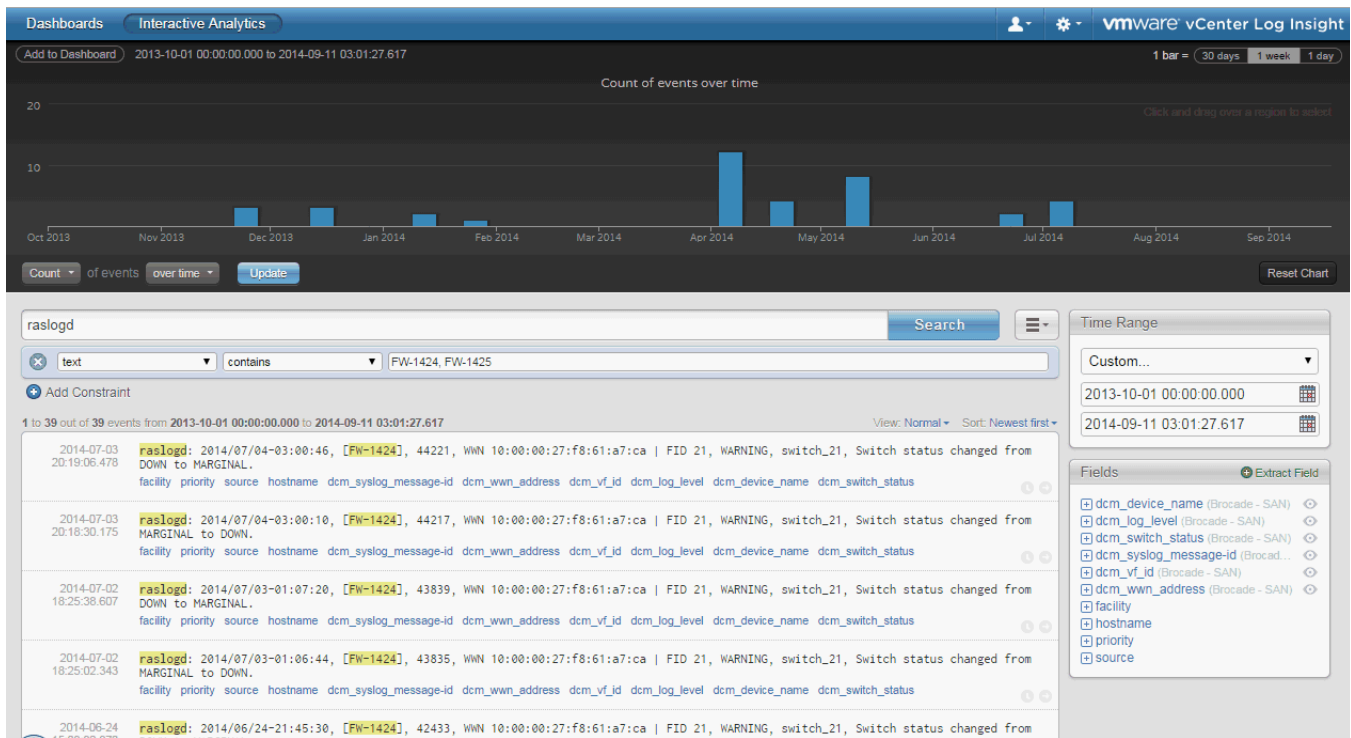


FIGURE 29 Interactive Analytics tab

Log events


Log events display on the **Interactive Analytics** tab in chart format (top of tab) and in a list of log events (bottom of tab). Log event charts display as a graphical analysis of the log events for a specified time period.

You can filter log events on the **Interactive Analytics** tab by time period ([“Filtering log event charts by time”](#) on page 29), by field values ([“Filtering log events by field value”](#) on page 30), or by changing the aggregation and grouping.

Filtering log events by aggregation and grouping

The number of drop-down menus that display under the chart depends on the selected aggregation function.


To filter the events by aggregation and grouping of the results, complete the following steps.

1. From the **Dashboards** tab, select a dashboard (refer to [“Accessing a dashboard”](#) on page 8).
2. Click the  icon of the widget that you want to display in the **Interactive Analytics** tab.
3. Select one of the following options from the first drop-down list:
 - **Count** — Creates a chart of the number of events for a specific query. Go to [step 5](#).
 - **Minimum** — Creates a chart of the maximum value for a field. Continue with [step 4](#).
 - **Maximum** — Creates a chart of the minimum value for a field. Continue with [step 4](#).

- **Average** — Creates a chart of the average value for a field. Continue with [step 4](#).
 - **Standard Deviation** — Creates a chart of the standard deviation for a field's values. Continue with [step 4](#).
 - **Sum** — Creates a chart of the sum of values for a field. Continue with [step 4](#).
 - **Variance** — Creates a chart of the variance for the values of a field. Continue with [step 4](#).
4. Select one of the following from the drop-down list:
 - Brocade - SAN content pack fields — These fields only display when you view data for a dashboard widget. The available fields depend on the selected widget. For a list of all possible fields, refer to [“Brocade SAN custom extract fields”](#) on page 34.
 - **facility**
 - **hostname**
 - **priority**
 - **source**
 5. Select one or more of the following check boxes from the drop-down list:
If you selected
 - **Time Series** — Select to view the number of events over time.
 - Brocade - SAN content pack fields — These fields only display when you view data for a dashboard widget. The available fields depend on the selected widget. For a list of all possible fields, refer to [“Brocade SAN custom extract fields”](#) on page 34.
 - **facility**
 - **hostname**
 - **priority**
 - **source**
 6. Click **Update**.
To display log events as a widget on a dashboard, [“Adding a log event chart to a dashboard”](#) on page 31.

Filtering log event charts by time


To filter log event charts by time, complete the following steps.

1. From the **Dashboards** tab, select a dashboard (refer to [“Accessing a dashboard”](#) on page 8).
2. Click the  icon of the widget that you want to display in the **Interactive Analytics** tab.
3. Select the time range for which you want to view data in the **Time Range** area. Options include
 - **Latest 5 minutes of data**
 - **Latest hour of data**
 - **Latest 6 hours of data**
 - **Latest 24 hours of data**
 - **All Time**
 - **Custom** (refer to [“Defining a custom time frame”](#) on page 9)

Both the chart and the list of log events update when the filter is complete.

Filtering log event lists by time

To filter log event lists by time, complete the following steps.

1. From the **Dashboards** tab, select a dashboard (refer to “[Accessing a dashboard](#)” on page 8).
2. Click the  icon of the widget that you want to display in the **Interactive Analytics** tab.
3. Click a bar on the chart to only display logs for that time period in the list of log events.

Filtering log events by field value

To filter log events by field value, complete the following steps.


1. From the **Dashboards** tab, select a dashboard (refer to “[Accessing a dashboard](#)” on page 8).
2. Click the  icon of the widget that you want to display in the **Interactive Analytics** tab.



FIGURE 30 Event log

3. In the list of log events area (beneath the chart), click the field value hyperlink by which you want to filter the list.

Place your cursor on a hyperlink to display the associated value as a tooltip. When you place your cursor on a Brocade SAN content pack field the associated value is highlighted in the log event text ([Figure 30](#)). Field value options include:
 - **facility**
 - **hostname**
 - **priority**
 - **source**
 - Brocade SAN content pack fields — These fields only display when you view data for a dashboard widget. The available fields depend on the selected widget. For a list of all possible fields, refer to “[Brocade SAN custom extract fields](#)” on page 34.
4. Repeat [step 3](#) for each constraint that you want to include in the filter.

Searching log events

To search for a log event by term, enter the text or number you are looking for in the **Search** field and click **Search**.

All log events that contain the specified term display beneath the **Search** field with the search term highlighted in yellow.

Adding a log event chart to a dashboard

Once you display a log event on the **Interactive Analytics** tab, you can save it to one of your custom dashboards.

NOTE

You cannot save a log event chart to a Brocade SAN content pack dashboard.

To save a log event chart to a dashboard, complete the following steps.

1. Display the log event chart on the on the **Interactive Analytics** tab.
Create a unique log event chart by filtering the log, refer to [“Filtering log events by aggregation and grouping”](#) on page 28, [“Filtering log event charts by time”](#) on page 29, or [“Filtering log events by field value”](#) on page 30.
2. Click **Add to Dashboard** (upper left in the chart area).
3. Edit the name of the log event chart in the **Name** field, if necessary.
4. Select the custom dashboard you want to add the log event chart to in the **Select Dashboard** list.

OR

Create a new dashboard by selecting **New Dashboard** and complete the following steps:

- a. Enter a name for the new dashboard in the **Name** field.
 - b. Share the dashboard with other users by selecting the **Share this dashboard among all users** check box.
 - c. Click **Save**.
5. (Optional) Enter any additional information in the **Notes** text box.
 6. Click **Add**.

The log event chart is added as a widget on the selected dashboard.

Alerts

NOTE

You can only manage your own alerts.

The Brocade Fabric OS Switch Log Insight Content Pack provides preconfigured alert queries that run every 5 minutes. When the number of events defined in the query exceed the configured thresholds, the system sends an e-mail notification.

The Brocade Fabric OS Switch Log Insight Content Pack includes the following preconfigured alert queries:

- **Switch Status Degraded Alert** — The system generates a switch status degraded alert when the switch status degrades to marginal or down. This alert depends on the FW-1424 syslog message to generate the alert.
- **Switch Panic or Crash Alert** — The system generates a switch panic or crash alert when a switch is panicked or crashed.

- **Call Home Alert** — The system generates a call home alert upon receiving any critical events from the switch, such as MS-1009, FW-1402, FW-1426, FW-1427, FW-1428, FW-1429, FW-1430, FW-1431, FW-1432, FW-1433, FW-1434, FW-1435, FW-1436, FW-1437, FW-1438, and MAPS-1021.
- **MAPS Violation Alert** — The system generates a MAPS violation alert if any MAPS rules are violated. This alert depends on MAPS-1001, MAPS-1002, and MAPS-1003 syslog events.
- **Bottleneck Alert** — The system generates a bottleneck alert if any bottleneck events are generated, such as AN-1003, AN-1004, AN-1007, AN-1008, and AN-1010.

Viewing alert queries

To view existing alert queries, complete the following steps.

1. Click the **Interactive Analytics** tab.
2. From the drop-down menu to the right of the **Search** button, select **Manage Alerts**.
All configured alerts display in the **Manage Alerts** list.
3. Click **Save to My Alerts**.

Configuring e-mail notification

You must be logged into the Log Insight Web user interface and SMTP must be configured before you can e-mail alert details. For more information, refer to the VMware vCenter Log Insight online help.

To configure an e-mail to receive alert messages, complete the following steps.

1. Click the **Interactive Analytics** tab.
2. From the drop-down menu to the right of the **Search** button, select **Manage Alerts**.
3. In the **Manage Alerts** list, click the alert query for which you want to configure e-mail notification.
4. Select the **Enable Email** check box.
If you clear the **Enable Email** check box, the alert query is disabled.
5. Enter an e-mail address in the **Email** field.
You can configure notification for more than e-mail by entering one or more e-mail addresses separated by commas.
6. Click **Save to My Alerts**.

Configuring an alert query

To configure an alert query, complete the following steps.

1. Click the **Interactive Analytics** tab.
2. From the drop-down menu to the right of the **Search** button, select **Manage Alerts**.
3. In the **Manage Alerts** list, click the alert query for which you want to configure a new alert.

4. Select one of the following options;
 - Select the **on any match** option to send an alert for each match. Go to [step 7](#).
 - Select the **when** option to configure an alert query based on number of events within a specified time period. Continue with [step 5](#).
5. Configure the number of events needed to trigger an alert by selecting **more than** or **less than** from the first drop-down list and entering a corresponding value in the field.
6. Configure how often to run the alert query by selecting a time value in the second drop-down list.

Valid values include: 5 Minutes, 15 Minutes, 30 Minutes, 1 Hour, 6 Hours, 12 Hours, 1 Day, or Custom. If you select Custom, enter the time value in minutes.
7. Click **Save to My Alerts**.

Running an alert query

To run an alert query, complete the following steps.

1. Click the **Interactive Analytics** tab.
2. From the drop-down menu to the right of the **Search** button, select **Manage Alerts**.
All configured alerts display in the **Manage Alerts** list.
3. In the **Manage Alerts** list, click the alert query you want to run.
4. Click **Run Query**.

The results of the selected query displays in chart format in the **Interactive Analytics** tab.

Saving an alert query to a dashboard

Once you run an alert and the result displays on the **Interactive Analytics** tab, you can save it to one of your custom dashboards.

NOTE

You cannot save alert query results to a Brocade SAN content pack dashboard.

To save the alert query results to a dashboard, complete the following steps.

1. Run the alert query (refer to [“Running an alert query”](#) on page 33)
The results of the selected query displays in chart format in the **Interactive Analytics** tab.
2. Click **Add to Dashboard** (upper left in the chart area).
3. Edit the name of the query in the **Name** field, if necessary.
4. Select the custom dashboard you want to add the query to in the **Select Dashboard** list.

OR

Create a new dashboard by selecting **New Dashboard** and complete the following steps:

- a. Enter a name for the new dashboard in the **Name** field.
- b. Share the dashboard with other users by selecting the **Share this dashboard among all users** check box.

- c. Click **Save**.
 5. (Optional) Enter any additional information in the Notes text box.
 6. Click **Add**.
- The query is added as a widget on the selected dashboard.

Brocade SAN custom extract fields

The Brocade Fabric OS Switch Log Insight Content Pack for VMware vCenter Operations Management Suite includes Brocade SAN custom extract fields (refer to [Table 10](#) on page 34). You can use these fields to retrieve data from the Fabric OS syslog messages (refer to [“Accessing a dashboard”](#) on page 8), create an alert query (refer to [“Configuring an alert query”](#) on page 32), or define a widget on a custom dashboard ([“Adding a log event chart to a dashboard”](#) on page 31).


TABLE 10 Default Brocade SAN custom extract fields

Custom field name	Description	Example values
dcm_audit_module	The Fabric OS subsystem which generated this audit event.	Security or Fabric
dcm_audit_priority	The priority of the audit event.	Informational or Warning
dcm_audit_type	The type of the audit event.	Login or Logout
dcm_audit_status	The status of the event.	Login failed or success
dcm_audit_info	The information about the event.	Failed login attempt via HTTP
dcm_audit_IPAddress	The IP Address of the Fabric OS switch.	IP address
dcm_bottleneck_type	Displays the type of bottleneck.	Congestion or Latency
dcm_switch_status	The switch transition status (previous and current status).	Healthy to Down
dcm_vf_id	The virtual Fabric identifier of the switch.	
dcm_syslog_message-id	The message identifier.	FW-1435, MAPS-1003
dcm_wwn_address	The world wide name of the switch.	Switch WWN
dcm_log_level	The syslog priority level.	Info, Warning
dcm_device_name	The name of the switch.	switch name
dcm_device_port	The port number of the switch.	port number
dcm_flash_usage	The flash usage details.	Numeric value
dcm_maps_rulename	The MAPS violation rule name.	String
dcm_maps_rulecondition	The MAPs violation rule condition.	ALL_PORTS(RX/min>=0)
dcm_maps_object	The MAPs violation occurred object details.	Switch, Chassis
dcm_maps_category	The MAPS violation category.	Traffic Performance, Port Health, and so on.
dcm_maps_currentValue	The current value.	SEC_HTTP, 1 Violations
dcm_flow_currentValue	The current value of the violation count.	Numeric value

Viewing extract field data

You can view the extract field data in graphical format as a bar chart or view the values used to define the extract field.

To view the extract field data, complete the following steps.

1. From the **Dashboards** tab, select a dashboard (refer to [“Accessing a dashboard”](#) on page 8).
2. Click the  icon of the widget that you want to display in the **Interactive Analytics** tab.
3. Click the + icon to display graphical data for a field value.

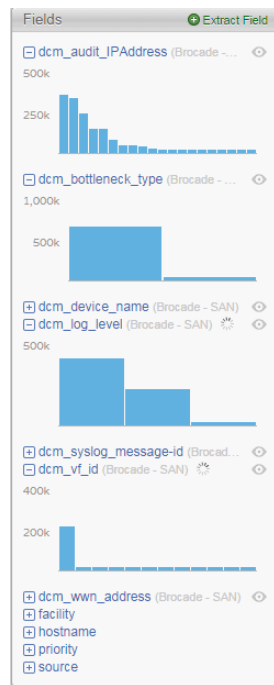


FIGURE 31 Extract field graphical data

4. Click the eye icon to display field values for the extract field.

The eye icon does not display for the facility, hostname, priority, and source field values.

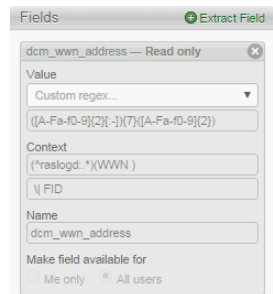


FIGURE 32 Extract field data values

3 Brocade SAN custom extract fields